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World Intellectual Property Organization (WIPO) - Geneva, Switzerland  
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PATENTS / DESIGNS / TRADE MARKS /  
GEOGRAPHICAL INDICATION



सत्यमेव जयते

Government Of India  
Patent Office  
Todi Estates, 3<sup>rd</sup> Floor,  
Lower Parel (West)  
Mumbai – 400 013

THE PATENTS ACT, 1970

IT IS HEREBY CERTIFIED THAT, the annex is a true copy of Application and Complete Specification filed on 02/09/2003 and post dated to 15/12/2003 under Section 17(1) of the Patents Act, 1970 in respect of Patent Application No.885/MUM/2003 of **EVOLVEWARE INFORMATION TECHNOLOGY (INDIA) PVT.LTD.**, F-102, Riviresa Complex, S/287, Baner Road, Baner, Pune – 411 045, Maharashtra, India, An Indian Company.

This certificate is issued under the powers vested in me under  
Section 147(1) of the Patents Act, 1970.

.....Dated this 16<sup>th</sup> day of May 2005.

(A. T. PATRE)  
ASST. CONTROLLER OF PATENTS & DESIGNS.

**FORM-1**  
**THE PATENTS ACT, 1970**  
**(39 of 1970)**

**APPLICATION FOR GRANT OF A PATENT**  
**[See sections 5(2), 7, 54 and 135 and rule 33A]**

1. We,  
(a) EVOLVEWARE INFORMATION TECHNOLOGY (INDIA) PVT. LTD.,  
(b) F-102, Riviresa Complex,  
S/287, Baner Road, Baner,  
Pune-411 045, Maharashtra, India.  
(c) An Indian Company
2. we hereby declare-  
(a) that we are in possession of an invention titled "INVENTION RELATING TO CREATING AUTOMATED TOOLS FOR MIGRATION AND CONVERSION OF SOFTWARE CODE FROM ANY SOURCE PLATFORM TO ANY TARGET PLATFORM".  
(b) That the Provisional/Complete Specification relating to this invention is filed with this application.  
(c) that there is no lawful ground of objection to the grant of a patent to us.
3. Further declare that the inventor(s) for the said invention is  
(a) MITEN M. MARFATHIA,  
(b) C/o. EVOLVEWARE INFORMATION TECHNOLOGY (INDIA) PVT. LTD.,  
F-102, Riviresa Complex,  
S/287, Baner Road, Baner,  
Pune- 411 045, Maharashtra, India.  
(c) An Indian National.  
(a) AJAY M. RAMBHIA,  
(b) C/o. EVOLVEWARE INFORMATION TECHNOLOGY (INDIA) PVT. LTD.,  
F-102, Riviresa Complex,  
S/287, Baner Road, Baner,  
Pune- 411 045, Maharashtra, India.  
(c) An Indian National.
4. We, claim the priority from the application(s) filed in convention countries, particulars of which are as follows:-  
(a) N/A.  
(b) N/A.  
(c) N/A.
5. We, state that the said invention is an improvement in or modification of the invention, the particulars of which are as follows and of which, I am the applicant:  
(a) N/A.  
(b) N/A.
6. We State that the application is divided out of our application, the particulars of which are given below and pray that this application deemed to have been filed on ..... under Section 16 of the Act.  
(a) N/A.  
(b) N/A.

duplicate  
885/MUM/03  
21/9/03

885/मुंबई  
MUM 2003  
2 SEP 2003

The application has been Post-  
dated to 15.12.2003  
u/s 17(1) of Patents Act, 1970  
(as amended in 2005).

(K.P. Sah)  
Examiner of Patents & Designs.

ORIGINAL

7. That We are the assignee or legal representative of the true and first inventors.
8. That our address for service in India is as follows:

**Y.J.TRIVEDI and JATIN Y. TRIVEDI**  
**OF Y.J.TRIVEDI & COMPANY**  
**Patent & Trade Mark Attorney & Advocate.**  
**204,205, Ashirwad, Opp: HK House,**  
**Ashram Road, Ahmedabad-380 009**  
**Gujarat State, India**

9. Following declaration was given by the investor(s) or applicant(s)

We the true and first inventors for this invention or the applicant(s) declare that the applicant(s) herein are our assignee or legal representative

(a) MITEN M. MARFATHIA



(b) AJAY M. RAMBHIA



10. That to the best of my knowledge, information and belief the fact and matters stated herein are correct and that there is no lawful ground of objection to the grant of patent to me/us on this application.

11. Following are the attachment with the application:

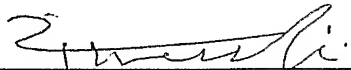
- (a) Complete Specification (3 Copies)
- (b) Drawings (3 Copies)
- (c) Priority Documents
- (d) State and Undertaking on FORM-3
- (e) Power of Attorney
- (d) Fee Rs. 3005/- in Cash/Cheque/Demand-Draft bearing No. 446658  
date 25/08/03 on U Co Bank

We request that a patent may be granted to us for the said invention.

Date this 28<sup>th</sup> day of August 2003.

For, EVOLVEWARE INFORMATION TECHNOLOGY (INDIA) PVT. LTD,

To,  
The Controller of Patents  
The Patent Office,  
At. Mumbai

  
(Y.J.TRIVEDI)  
Authorised Agent of the Applicant

- 1 SEP 2003

FORM - 2

THE PATENTS ACT, 1970

COMPLETE SPECIFICATION : SECTION - 10

“ AN INVENTION RELATING TO CREATING AUTOMATED TOOLS FOR  
MIGRATION AND CONVERSION OF SOFTWARE CODE FROM  
ANY SOURCE PLATFORM TO ANY TARGET PLATFORM ”.

EVOLVE WARE INFORMATION TECHNOLOGY (INDIA) PVT. LTD.

F-102, Riveresa Complex,  
S/287, Baner Road, Baner,  
Pune -411 045,  
Maharashtra State, India.

duplicate  
885/MUM/03  
21/9/03

The following specification particularly describes and ascertains the  
nature of this invention and manner in which it is to be performed :-

885 / मुंबई / 2003  
MUM / 2003

The application has been post-dated  
to 15.12.2003 u/s 17(1) of the  
Patents Act, 1970 (as amended in 2005)

2-9-03

2 SEP 2003

C. K. P. SATI  
Examiner of Patents & Designs

This invention relates to 'Creating automated tool for migration and conversion of software code from any source platform to any target platform'.

The currently existing system for migration or updation of any legacy application developed, using a known technology is achieved manually. Hence, the amount of time spent and the cost invested for the same is very high. Moreover, there is no specific tool available to migrate and/or upgrade any application. There may be an individual tool for each such conversion. To get out of such a problem, the inventors have developed a system or technology by which from any platform you can achieve migration of applications and code to any targeted platform and thereby, the problem can be achieved. As in a known system, there is not a single tool available of such a conversion. Therefore, the inventors have invented a tool for any source platform to any targeted platform and enterprise resource planning available. The present inventors have developed a new technology, which is described as under :

The effect of these technology enhancements in the challenge to upgrade existing legacy applications, as well as develop new ones, that will interface seamlessly with old technology based systems.

Hence, to provide support for open system standards using component based methodology, it is suggested that :

- Existing legacy applications be migrated to incorporate the newer technology or ;
- Existing applications be extended with an interface to the newer technology.

Migrating to new technologies is most time consuming and often results in reinventing the business processes, which may have been written decades ago. However, this is the most optimal solution and the desired one, if there exist tools to expedite the conversion process.

EvolveWare's suite of tools, an ERP/SCM/CRM integration interface tool, an application/database migration tool and a Web Page validation and code generation tool serve this purpose.

Extending new technologies can be challenging rather than time consuming – this requires an in-depth knowledge of the existing system APIs as well as integration expertise of the newer technology with the same APIs. Additionally, the interface design has to be planned with a viewpoint of long-term usability as technology evolves and enhances. This includes creating a start up plan with a library of basic interfaces. The process of "extending" an existing application is to assemble these interfaces to accept the input/output standards of the newer technology, a technique called "wrapping".

EvolveWare's suite of tools were developed to help clients migrate their applications at a faster pace than if they extended the same application. The technology used in the development of these tools is the same as that of the source platform to any target platform technology, which achieves upto 70 percent automation of the migration process.

The source platform to any target platform technology is a self-teaching system that learns from accumulated knowledge. The core of this technology is a Knowledge Engine (KE) that relies on sophisticated industry proven techniques of learning process and knowledge representation. This engine was developed using learning algorithms

related to Lexical Parsing, Artificial Neural Networks and Fuzzy mechanisms. The accumulated knowledge associated with this technology is a library of code, assembled as generic components and interfaces. This Knowledgebase (KB) is the result of over 200 man years of experience garnered by EvolveWare as a software consultant.

The KE is a generic processing unit that automates code migration and enhancements, allowing for any different design and development options.

When migrating an application, the engine is coupled to a knowledgebase specific to the target system. The engine processes the source system knowledge that is inserted into EvolveWare's Knowledgebase in a suitable syntax. Initially the migration requires some intervention as part of "the learning process" for the engine. Once the engine "learns" the intricacies of a particular source code, the process conversion time increases rapidly and the end result is a total migration process that is automated upto 70 percent.

When enhancing or extending an application, its meta-data is used to generate generic components that exhibit basic functionalities of that application. At the same time, EvolveWare's KE is tailored for the target technology with the source application's meta-data feeds, represented in XML format. This engine derives data type-mapping stream from these data feeds, which in turn create custom components that mimic the source application's behaviour.

These components from a knowledgebase, which when combined with EvolveWare's modified KE, form a custom automation tool with a "wizard like interface".



EvolveWare has achieved as much as 70% - 90% automation when enhancing or extending most applications.

The primary goals of EvolveWare's 'any Source platform to any targeted platform' technology are :

- Segregate and assemble process knowledge and attributes in a structured format to create a Knowledgebase.
- Create effective tools for current and future system migration, design and development.
- Reduce the overall development effort by having the tools "learn" from the created Knowledgebase, thereby automating the migration, design and development process as much as possible.
- Create well defined suite of tools for various technology platforms.

The schematic below describes a 'Any Source platform to any targeted platform' technology aided process for migration or enhancement of any application. As shown, the existing application's meta-data (properties) drives the conversion of enhancement process, using a Knowledge as describe above.

The process, as shown above generates custom components and interfaces in the target technology format. The Knowledgebase shown is a collection of generic components and process knowledge in terms of source coding styles and desired output standards.

In the schematic above, the target platform has been assumed to be Web Services. Hence, the output files are custom components shown as WSDL and related interface classes.

Using these custom components from a component library, the overall system design and development process is as shown below to give a final System Model.

As shown, creation of a Knowledgebase and basic building blocks (generic components) for the 'Any source platform to any target platform' technology carries an initial price in terms of time and cost. However, once these are in place, the long-term gains are substantial. More importantly a foundation and a methodology is created for future development and enhancements.

Dated this ~~28th~~ day of ~~August~~ 2003.

*Y. J. Trivedi*  
( Y. J. Trivedi )